Message

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Sent: 9/5/2018 6:04:12 PM
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Subject: SOT-RASS webinar on September 12 with slides attached
Attachments: Martyn_Smith_Key Characteristics for RASS_9-5-2018.pptx

Dear all

I will be giving a special webinar on the KCs on September 12 for SOT-RASS. The slides I propose to present are attached. Details of the webinar follow if you would like to join.

Risk Assessment Specialty Section (RASS)

Webinar

Wednesday September 12, 2018
3:00 to 4:30 p.m. (EDT)
(See below for Instructions on Webinar Access)

The Key Characteristics Approach to Evaluating Mechanistic Data in Hazard Identification and Risk Assessment

Martyn T. Smith, PhD
Professor of Toxicology and
Kenneth and Marjorie Kaiser Chair of Cancer Epidemiology
Director, Superfund Research Program and
Deputy Directory, Koret Institute of Precision Prevention
Division of Environmental Health Sciences
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Abstract

The key characteristics (KCs) of human carcinogens were recently introduced as the basis of a uniform approach for searching, organizing, and evaluating mechanistic evidence to support cancer hazard identification (Smith et al 2016; Guyton et al, 2018). The KCs comprise the properties of known human carcinogens, including their ability to, be genotoxic; be immunosuppressive; or modulate receptor-mediated effects. Established human carcinogens commonly exhibit one or more of these characteristics, and therefore, data on these characteristics can provide independent evidence of carcinogenicity when human data are lacking. Such data can also help in interpreting the relevance and importance of findings of cancer in animals and in humans. In its 2017 report on "Using 21st Century Science to Improve Risk-Related Evaluations", the NRC recently opined that the KCs approach "avoids a narrow focus on specific pathways and hypotheses and provides for a broad, holistic consideration of the mechanistic evidence." They further suggested that key characteristics be developed for other endpoints, such as endocrine disruption and reproductive toxicity, and efforts in this regard are approaching completion and publication. The KC approach therefore holds great potential to improve hazard identification and risk assessment, but still needs to be further developed especially in regard to its harmonization with the hallmarks of cancer and its potential for helping analyze the toxic effects of untested chemicals and chemical mixtures in cell culture and experimental animals. Unfortunately, the current Tox21 and Toxcast repertoire of assays are mostly lacking in relevance to the KCs, as are most clinical biomarkers. Approaches to developing a new set of high throughput tests and biomarkers (a CarciCAST) will be described along with a discussion of the use of the key characteristics approach in hazard identification and risk assessment instead of, or as well as, the current MOA/AOP approach.

Dear RASS Members

Dr. Martyn Smith of UC Berkeley will present *The Key Characteristics Approach to Evaluating Mechanistic Data*
in Hazard Identification and Risk Assessment. The URL for the two publications cited in his abstract (provided below) can be found here (both open access):

- Smith et al (2016). Key Characteristics of Carcinogens as a Basis for Organizing Data on Mechanisms of Carcinogenesis (https://www.ncbi.nlm.nih.gov/pubmed/26600562)
- Guyton et al (2018). Application of the key characteristics of carcinogens in cancer hazard identification (https://www.ncbi.nlm.nih.gov/pubmed/29562322)

The file for the presentation will be available for download on Tuesday September 11th by Noon in the "Webinars and Downloads" section of the RASS homepage. The URL is as follows:http://www.toxicology.org/groups/ss/RASS/downloads.asp.

As advances in biotechnology are providing new data types to be considered and our understanding of important biological processes progresses, the challenge of how to integrate and quantify mechanistic events into a model of pathogenesis for risk assessment remains. This topic is timely and should engender a good discussion. I encourage you all again this year to show your appreciation by attendance and active discussion during our webinars. Remember, your participation in the webinars and especially the discussion at the end makes the time taken by our presenters to contribute to our webinars worthwhile.

With best wishes,
Annie

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